

FS7KM-12

HIGH-SPEED SWITCHING USE

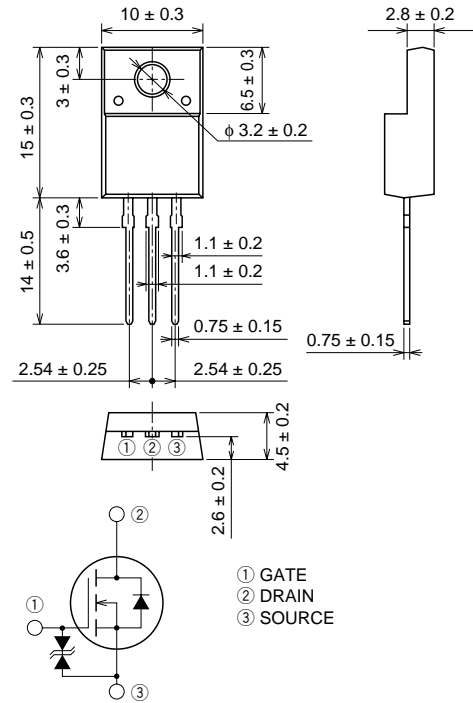
FS7KM-12



- V_{DS} 600V
- $r_{DS(ON)}(MAX)$ 1.3Ω
- I_D 7A
- V_{iso} 2000V

OUTLINE DRAWING

Dimensions in mm



TO-220FN

APPLICATION

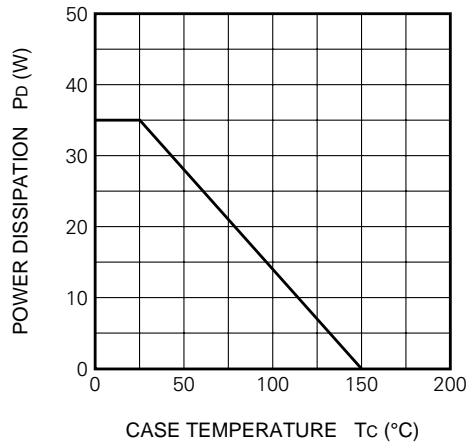
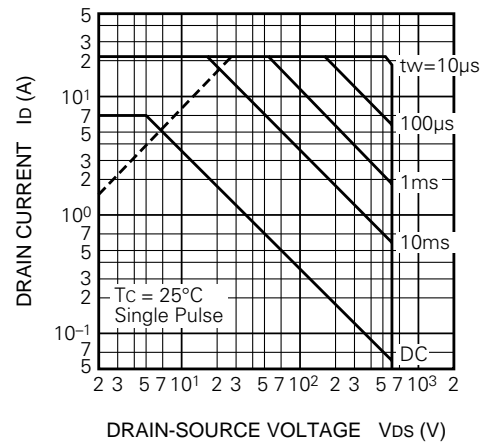
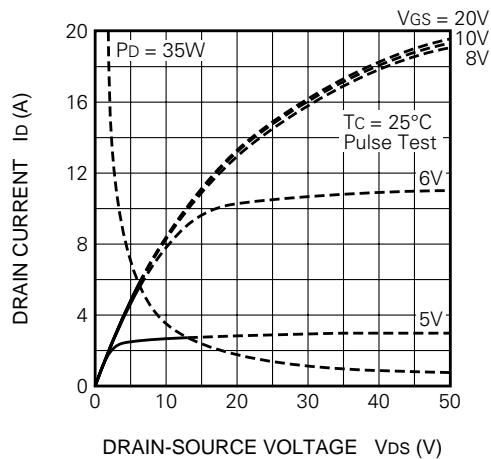
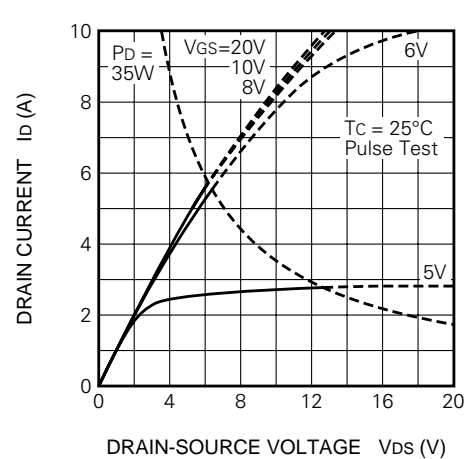
SMPS, DC-DC Converter, battery charger, power supply of printer, copier, HDD, FDD, TV, VCR, personal computer etc.

MAXIMUM RATINGS (T_c = 25°C)

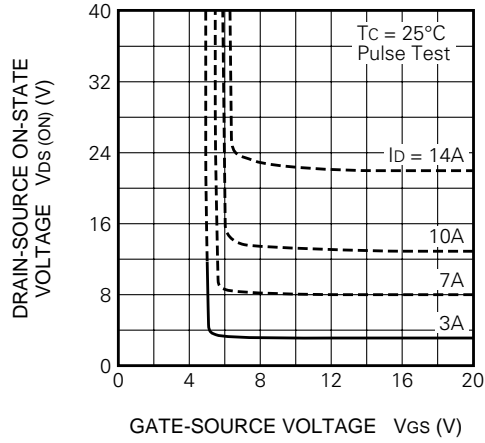
Symbol	Parameter	Conditions	Ratings	Unit
V_{DS}	Drain-source voltage	$V_{GS} = 0V$	600	V
V_{GS}	Gate-source voltage	$V_{DS} = 0V$	± 30	V
I_D	Drain current		7	A
I_{DM}	Drain current (Pulsed)		21	A
P_D	Maximum power dissipation		35	W
T_{ch}	Channel temperature		-55 ~ +150	°C
T_{stg}	Storage temperature		-55 ~ +150	°C
V_{iso}	Isolation voltage	AC for 1minute, Terminal to case	2000	V _{rms}
—	Weight	Typical value	2.0	g

ELECTRICAL CHARACTERISTICS ($T_{ch} = 25^{\circ}\text{C}$)

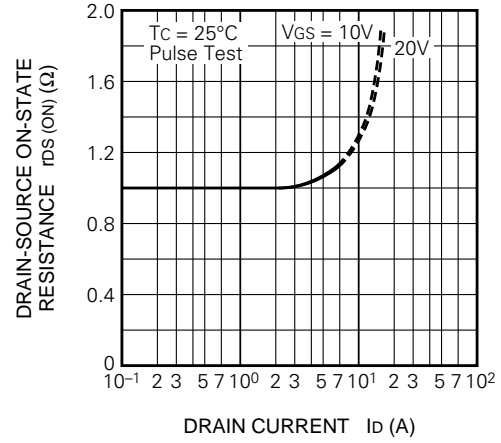
Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
$V_{(BR)DSS}$	Drain-source breakdown voltage	$I_D = 1\text{mA}$, $V_{GS} = 0\text{V}$	600	—	—	V
$V_{(BR)GSS}$	Gate-source breakdown voltage	$I_G = \pm 100\mu\text{A}$, $V_{DS} = 0\text{V}$	± 30	—	—	V
I_{GSS}	Gate-source leakage current	$V_{GS} = \pm 25\text{V}$, $V_{DS} = 0\text{V}$	—	—	± 10	μA
I_{DSS}	Drain-source leakage current	$V_{DS} = 600\text{V}$, $V_{GS} = 0\text{V}$	—	—	1	mA
$V_{GS(th)}$	Gate-source threshold voltage	$I_D = 1\text{mA}$, $V_{DS} = 10\text{V}$	2	3	4	V
$r_{DS(on)}$	Drain-source on-state resistance	$I_D = 3\text{A}$, $V_{GS} = 10\text{V}$	—	1.0	1.3	Ω
$V_{DS(on)}$	Drain-source on-state voltage	$I_D = 3\text{A}$, $V_{GS} = 10\text{V}$	—	3.0	3.9	V
$ y_{fs} $	Forward transfer admittance	$I_D = 3\text{A}$, $V_{DS} = 10\text{V}$	3.0	5.0	—	S
C_{iss}	Input capacitance	$V_{DS} = 25\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$	—	1100	—	pF
C_{oss}	Output capacitance		—	125	—	pF
C_{rss}	Reverse transfer capacitance		—	17	—	pF
$t_{d(on)}$	Turn-on delay time	$V_{DD} = 200\text{V}$, $I_D = 3\text{A}$, $V_{GS} = 10\text{V}$, $R_{GEN} = R_{GS} = 50\Omega$	—	30	—	ns
t_r	Rise time		—	30	—	ns
$t_{d(off)}$	Turn-off delay time		—	100	—	ns
t_f	Fall time		—	35	—	ns
V_{SD}	Source-drain voltage	$I_S = 3\text{A}$, $V_{GS} = 0\text{V}$	—	1.5	2.0	V
$R_{th(ch-c)}$	Thermal resistance	Channel to case	—	—	3.57	$^{\circ}\text{C/W}$

PERFORMANCE CURVES**POWER DISSIPATION DERATING CURVE****MAXIMUM SAFE OPERATING AREA****OUTPUT CHARACTERISTICS (TYPICAL)****OUTPUT CHARACTERISTICS (TYPICAL)**

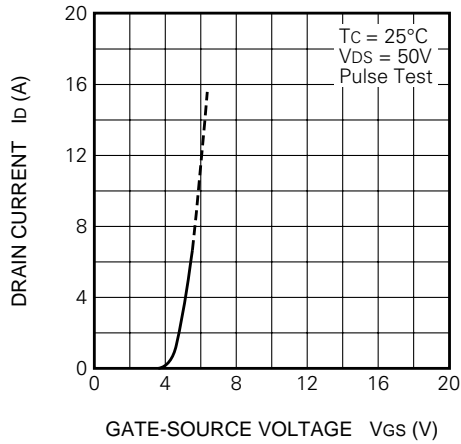
ON-STATE VOLTAGE VS.
GATE-SOURCE VOLTAGE
(TYPICAL)



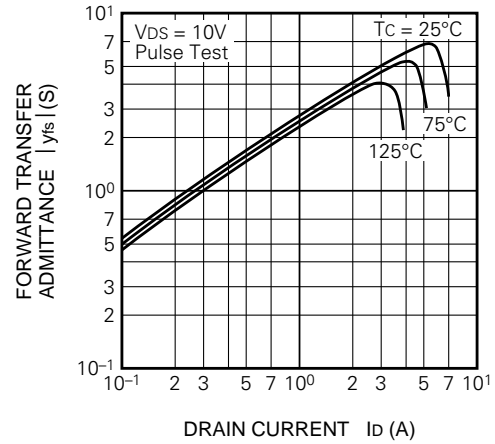
ON-STATE RESISTANCE VS.
DRAIN CURRENT
(TYPICAL)



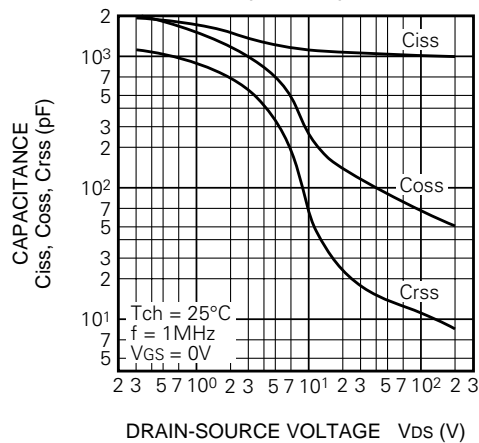
TRANSFER CHARACTERISTICS
(TYPICAL)



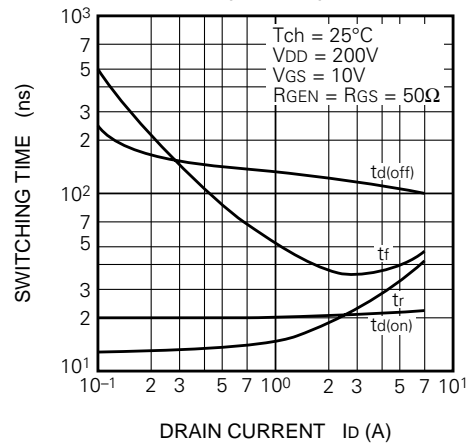
FORWARD TRANSFER ADMITTANCE
VS. DRAIN CURRENT
(TYPICAL)



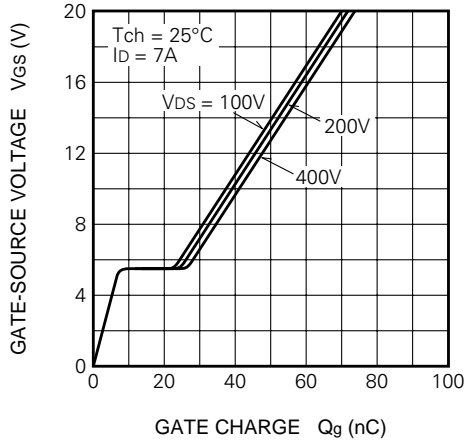
CAPACITANCE VS.
DRAIN-SOURCE VOLTAGE
(TYPICAL)



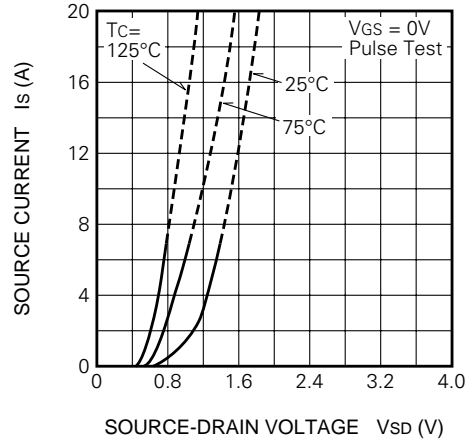
SWITCHING CHARACTERISTICS
(TYPICAL)



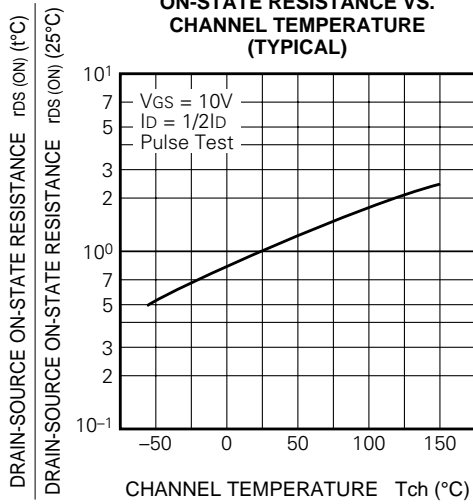
**GATE-SOURCE VOLTAGE
VS. GATE CHARGE
(TYPICAL)**



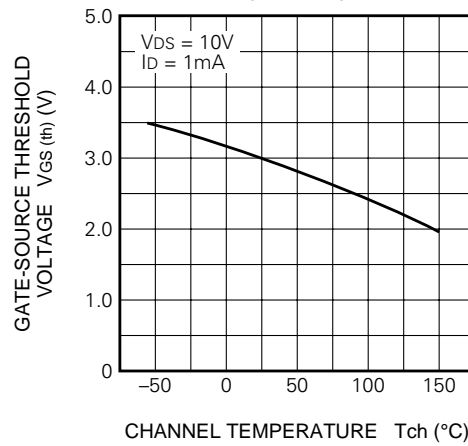
**SOURCE-DRAIN DIODE
FORWARD CHARACTERISTICS
(TYPICAL)**



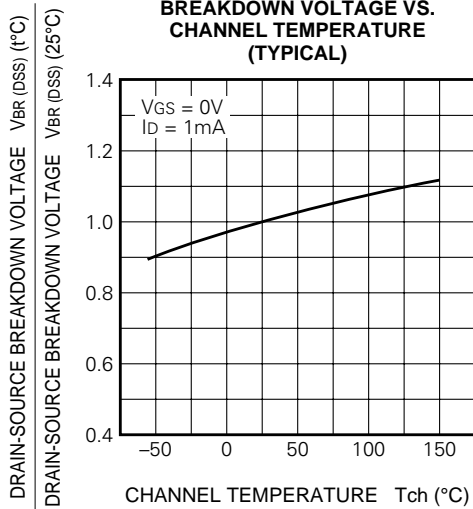
**ON-STATE RESISTANCE VS.
CHANNEL TEMPERATURE
(TYPICAL)**



**THRESHOLD VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)**



**BREAKDOWN VOLTAGE VS.
CHANNEL TEMPERATURE
(TYPICAL)**



**TRANSIENT THERMAL IMPEDANCE
CHARACTERISTICS**

